DRAFT

DIFFERENTIATION OF HEALTH CARE UTILIZATION*

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Abstract

Having previously determined that the 496 proxy respondents included in Aging in Manitoba did not differ systematically in terms of demographic, social, psychological factors and needs from non-proxy respondents (N=4062), analysis was undertaken to see whether health utilization varied. As part of a larger longitudinal study of a sample of aging Manitobans (NHG #607-1157), total health care utilization over 8 years, the specific utilization rates and patterns of those respondents for whom proxy interviews were completed in 1971 were analyzed. Utilization included medical (units and services), hospital (acute and chronic), personal care home (nursing home) and home care services. Selected variations in utilization rates were found in this sub-study. In the non-proxy group, utilization tended to increase generally as needs increased. In the proxy group selected categories of use showed the opposite pattern; i.e. low need and high utilization. These findings suggest that needs assessment via proxy interviews may not be as valid in predicting utilization over time as is the case of non-proxy interviews. It also suggests the necessity for additional study of this sub-sample.

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BACKGROUND

As many of you are aware the Manitoba Department of Health and Social Development (now the Departments of Health and of Community Services and Corrections) undertook a major study of the needs of the Elderly Manitobans (N-4800) and the resources (N=680) available to meet those needs in 1971 and a smaller Update Study of 1300 persons and 680 resources in 1976. Further, with funding from Health and Welfare Canada (NHRDP #6607-1157), the health service utilization of these persons and their spouses has been extracted for the years 1970-1977. Therefore, this study has two data bases: the first, the interview data on 6100 Manitobans age 60 and over, from two area probability random samples of all elderly Manitobans; and the second, the medical, hospital, personal care home and home care service utilization of 8500 Manitobans age 60 and over for the eight year period surrounding the two interview dates.

The merging of these two different data bases allows the identification of the characteristics of differential health care utilizers and the determination of non-diagnostic influences on the utilization of health care services as well as on morbidity patterns and mortality. Likewise, the availability of hard data on utilization provides the first opportunity for a needs assessment instrument to be tested for predictive validity other than by patient recall or idiosyncratic clinical confirmation.

The major task over the first stage of this research has been to select the variables to be studied in detail from the two data bases and to merge these bases into a single data set for analytic purposes. You will appreciate that this has been an enormous task knowing that the interview data set contains over 600 variables on the 6100 individuals and the utilization data set contains as many of 30 variables on each of 2918 days for the 8500 persons included in the study. The current merged data set contains just under 300 medical, hospital summary items and interview items for the 24 months surrounding the 1971 interview of 4558 of those individuals interviewed. Work has just been completed on this facet of the study; i.e., expanding the merged data set to contain all eight years of data and the total 8500 persons.

This completed merged file will allow the investigators to address the following specific objectives: a) Develop and test alternative methods for summarizing the longitudinal health care utilization data; b) Describe the health care utilization behaviours of those over 60; c) Identify and explain the demographic, social and psychological characteristics of those

60 or older who are either very low or very heavy utilizers of medical and hospital services; d) Examine the influence of social supports on health services utilization behaviours among those of 60; e) Test the validity of the "needs assessment profile methods" developed from the Aging in Manitoba (1973) survey as indicators of home care and personal care home service utilization and as predictors of subsequent utilization of medical services; f) Investigate the relationship between selected psycho-social factors, e.g., Life Satisfaction, Self-perception of Health, and Social Activity as assessed in 1971 and subsequent morbidity and mortality.

Review of the literature pertinent to social gerontology and to the significance of health services utilization reveals an extensive body of theory and research. However, from reviews of both substantive areas, no reports of longitudinal studies of the nature set out here have been identified (Havens, 1980). This research merges data obtained in the 1971 survey of a sample of Manitoba's population 65 and over with data routinely collected by the Manitoba Health Services Commission on utilization of physician, hospital, outpatient and personal care home services. Health care utilization data were obtained from the claims system for the period two years prior to the year of the "needs" interview (1969-1970), the year of the "needs" interview (1971), and for six years following the administration of the interview (1972-1977). In addition, a smaller replication of the 1971 survey was conducted in 1976. Survey data for these individuals have been merged with claims information for the period eight years prior to the survey, and the year following the survey (1977). The smaller survey can be used for testing the reliability of results and models derived from the first study, as well as for testing substantive hypotheses relevant to the changes which have taken place in the health delivery system in Manitoba over the five year period between the two surveys. Two important changes were the introduction of universal coverage for nursing homes in July 1973 and a provincially funded home care program in 1974. Data on registration in the home care program has also been merged with the basic data set.

Thus far, the research pertinent to health care and to the elderly is limited in amount and quality of scope, design, and geralizability. The present study will be able to overcome many of these deficiences, specifically, the sample for the 1971 Aging in Manitoba study is representative of the population of elderly in Manitoba. The use of health services utilization

data means that selective recall will not result in under or over-reporting of service use. Access to home care utilization data as well as personal care home information will reduce the amount of bias from undocumented service utilization. The availability of utilization data preceding and subsequent to the survey periods (1971 and 1976) will facilitate sorting out some of the antecedent/consequent problems inherent in cross sectional studies. The availability of measures of life satisfaction, cognitive functioning, activities of daily living, and self perceived health will permit assessment of the unique contribution to health care utilization, mortality, and differential morbidity after controlling for other confounding factors. Because of the large number of potentially important psychological, social and health-related variables measured in 1971 and the large size of the sample interviewed, it will be possible to control for many additional factors during the analyses and it will be feasible, using multivariate techniques, to consider the interactions between these variables. Last, the eight years of utilization data will allow identification of the long-term health care utilization behaviour patterns which do exist and to explore the possibility for using this type of data to identify morbidity levels among the aged.

Assessments of the health needs of the elderly in the community are typically based on judgement of these needs by physicians and/or nurses (Williamson, 1964; Cartright, 1967; Morris, 1974; The Health Care of the Aged Study, University of Rochester, 1968). For example, the British Columbia Geriatric Task Force (1976) and the Report of the Working Party of the British Medical Association on Services for the Elderly (1976) based their reports on their own professional expertise and/or experience.

Others have assessed health needs in general, and needs for specific services by contacting the elderly directly and attempting to measure their perceived needs (Aged and Long Term Illness Committee, Saskatchewan, 1963; The Special Senate Committee, 1966). In their review of health care utilization, Kohn and White (1976), have concluded that "perceived need", the patient's or consumer's view of what he or his family perceive as necessary, is the major determinant of the use of health services. However, these conclusions have been drawn from cross-sectional studies. We propose to examine the relationship between perceived needs and subsequent utilization from a longitudinal perspective.

The Aging in Manitoba study (1973), developed nine scales of self-perceived need which included those relating to: psycho-social needs; shelter needs; household maintenance; food and clothing needs; ethno-cultural needs; physical health and functioning needs; mental health and functioning needs; economic needs; proximity to friends and familiar surroundings; and availability of resources. The Manitoba Report of the Working Group on Home Care (1974) attempted to use the Aging in Manitoba study to define a potential target population for home care. It identified two profiles of self-perceived unmet needs, (based on the above scales) which represented approximately 20% of the elderly, as the population most likely to need home care services. Preliminary planning for and funding of Home Care Services in the province was based on this potential target population.

The validity of the needs profiles as appropriate indicators for home care use or as predictors for use of home care or other health services has not been examined. This research which permits a combination of needs assessment with longitudinal study of subsequent health care utilization will address these validity questions. The specific needs profiles developed from the Manitoba Aging study will be considered first and the predictive valdity for use of home care services and other health services will be tested. Alternate conceptualizations of self-perceived need may then be formulated and their validity tested.

Health status, physical mobility, morale, life satisfaction, education, socio-economic status, and cognitive function have been identified with longevity in studies of institutionalized and non-institutionalized individuals (Palmore and Stone, 1973; Bultena, 1971; Kasl, 1972; Granick, 1971). The degree to which these factors, singly or in combination, identify an individual at high risk of "premature" mortality has not, however, been determined.

This study will examine systematically the relationships among these factors and mortality for the purpose of identifying psycho-social and attitudinal profiles which can be used to identify high risk individuals. It will be possible also to investigate the ability of the single 1971 assessment of these factors to dientify persons at risk of "early death". Because of the large sample in the aging survey, it will be possible to examine the relative explanatory stability of these relationships according to age and sex cohorts. When "cohort" analysis is not possible the "longevity quotient"

methods developed by Palmore (1970) can be used to adjust for the influence of age and sex.

METHODS

To date, this project has constructed two types of utilization files. The first of these is the rather usual summary file of selected health service utilization variables merged with interview data for analytic purposes. The second utilization file is a locator file which identifies the use of any health service and documents the location of the individual on each of the almost three thousand days of the study. To date, this locator file has not been summarized and merged directly with the interview data. However, we do know from this file that some persons have consumed no health service during the entire nine years; others have consumed no service and the only entry on the file is their date of death; still others have consumed unbelievably large amounts of service, in fact one respondent had some health action on 738 consecutive days but then within the next two years had only 98 days of service consumption.

It is obvious from the foregoing that there are many patterns of use which can be identified given just the range of variability from no service use to several hundred days of health service use. While we are still identifying patterns and combining some as sub-sets of a broader category and sub-dividing the low, medium, and high utilizers of selected services for the year prior to and following the interview.

This paper will discuss the characteristics of three broad categories or levels of health service utilization. Almost without exception the nature of the data presented here would not be available from health service administrative records or reports; but are available in this case because these utilization data have been merged with the survey interview data. These data relate to the 4558 individuals for whom complete data existed for the twenty-four months studied. The remaining 236 individuals for whom incomplete utilization data were available have been reported elsewhere (Havens & Mossey, 1979).

As can be expected given the scope of the utilization data, there are many measures of health service utilization. These include, among others: the number of ambulatory visits; the number of ambulatory services; selected specific services frequencies; the number and frequency of diagnoses; the

number of acute hospital admissions; the number of days of acute hospitalization; the average length of acute hospital stay; the latter three also for chronic admissions; the NAMCS code seriousness of diagnosis; the risk to recovery index; the hernia equivalent index; the number of chronic conditions; and the percent of visits and services for chronic conditions. Still to be added to these data are other utilization indicators including: days of any service use; months of service use; entry to personal care home; level of care (and changes) in personal care home; months in personal care home; admission to home care; months of home care use; and death. Each of these variables has been (or will be) summarized for each quarter and for each of the eight years, and will ultimately be able to be summarized for the total of the eight years and 32 quarters.

Of the many measures of health service utlization, the five measures which have been selected for discussion in this report are: the number of ambulatory visits; the number of ambulatory services; the average length of stay in acute hospital; the percent of ambulatory visits for chronic care; and the percent of ambulatory services for chronic care. These measures were selected because they reflect the broad range of the health service utilization spectrum more adequately than many of the other more specific measures. It should be noted that due to the variability in distributions of cases within each utilization measure that the percentage of cases which have been designated as low, medium, and high varies from measure to measure and from level to level. These distributions are noted on the accompanying tables for each variable.

In order to facilitate the reading of the accompanying tables a brief description of the utilization measures is essential. Ambulatory Visits and Ambulatory Services are determined from the medical claims records and are the summary counts of all such visits and services consumed during the year prior to the interview (Year 1) and the year following the interview (Year 2). Each such claim includes the diagnosis (according to ICDA-8) relative to the visit or service. Every ICDA-8 diagnosis (three digit level) has been classified as acute or chronic. Therefore the percent of visits and services for chronic care refers to those diagnoses classified as chronic from the medical claims records and represents a portion of all ambulatory visits and services. The only utilization measure, reported here, which has been taken from the hospital claims records is the average length of acute hospital stay. This measure is calculated from the number and length of

of acute hospital admissions. In this case, each hospital in the province is identified as being either acute or chronic (extended care units or facilities) and acute stays are those which occur in acute hospitals regardless of diagnoses recorded on admission of the respondent to the hospital.

The Aging Needs Assessment Instrument (Manitoba, 1973) measures the degree of perceived unmet need in nine specific need areas as follows: Scale 1, Psycho-social needs; Scale 2, Shelter Needs; Scale 3, Household Maintenance, Food, and Clothing Needs; Scale 4, Ethno-cultural Needs; Scale 5, Physical Health Functioning Needs; Scale 6, Mental Health Functioning Needs; Scale 7, Economic Needs; Scale 8, Accessibility of Family/Friends and Familiar Community Needs; and Scale 9, Availability of Family/Friends and Community Resource Needs. Each need is measured on a scale of one to five with one, being low unmet need or independent in the specific need area and five being high unmet need or dependent in the specific need. These need scores are profiled over the nine needs to identify the strengths and limitations of the respondents or the configuration of needs. For purposes of this project a summary needs score has been added which is the sum of the individual mean need scores and has been labelled the Grand Total Mean Need.

The nine needs scale scores and the grand total mean need score have been used to divide the 4558 respondents according to their level of self-perceived needs as low, medium and high. One third of the respondents were assigned to each of the levels for each of the need areas as well as the grand total need. The same principle was applied to dividing the utilization indicators into low, medium, and high utilizers; however, because some utilization was minimal, it was not always possible to divide service use evenly into thirds. On the accompanying tables the need levels are shown down the left side and always represent one-third of the respondents while the utilization levels for the year before and the year after the interview are shown across the top and the distribution of respondents is identified in each table.

The specific sub-samples to be considered, here are those who responded on their own behalf to the interview and those whose responses were provided by a proxy individual. It has been determined previously (Manitoba, 1976) that the proxied respondents did not differ systematically in terms of demographic, social, psychological factors and needs from the non-proxy

respondent. Therefore, this analysis was undertaken to determine whether health care utilization varied and if so, whether such differences were systematic in any way. At this stage these analyses are restricted to 24 months surrounding the interview date in 1971.

FINDINGS

It is of interest to note that 93% of the 4558 sample was alive at the end of the two year period. The category of low utilization will by definition include the seven percent of deceased respondents for the time following their death. This group may be deleted from analysis for more detailed study, however, for purposes of initial description and for later considerations of health planning relative to an elderly population, their inclusion is instructive.

The only demographic data reported here which could have been derived from the health service administrative records are the age and sex distributions as reported in Tables 1 and 2. As expected, the largest cohort in the total sample is the youngest cohort (65-69 years of age) with 27.2% of the sample in this cohort. Just under four percent of the sample is 90 or over. Similarily, as expected, there are more females 53.2% than males 46.8% in the total sample. On the contrary the proxy respondents were found predominately in the middle cohorts (75-89) with 58.5% of the proxies in these three cohorts. The difference in sex distribution was extremely minimal.

Generally speaking, the distribution of utilization by age cohorts is very similar to the distribution of the sample. Therefore, the percentage utilizing services is approximately the same as the percentages in the sample. Virtually all the utilization categories are largest in the youngest cohort and the youngest cohort has a larger percentage in the low utilization category than they represent in the sample, except for ambulatory services. The only utilization category in which the distribution does not parallel the distribution of the sample is in high utilization of average length of acute stay wherein the youngest cohort is a much smaller percent (17.0% in Year 1 and 15.9% in Year 2) than the 27.2% in the sample. By and large, the distribution of utilization according to sex also closely approximate the sex distribution of the sample. In most utilization categories females are slightly over represented at high utilization level and several of the medium level utilization categories. However, females are under-represented in the high level of average length of acute stay; in fact, in Year 2 high utilization is exactly equally distributed between males and females.

In Table 3 the respondents are identified in the total sample as living in the community (75%) or living in a residential facility (25%). The latter includes in this table, those living in senior citizens housing as well as those receiving care in a personal care home or other care facility. The community residents are under-represented in the high levels in most utilization categories except ambulatory services and to a lesser extent in the chronic care categories. On the other hand, facility residents are very much over-represented at the high levels in average length of acute hospital stay, especially in Year 1 and in ambulatory visits. In that disproportionately more proxy respondents resided in facilities (60.4%) than in the community (39.6%) when compared to the total sample as would be expected the proxies tended to have utilization patterns similar to the facility sample, itself.

Tables 4 and 5 report the number of conditions which respondents identified as having or as being affected by the after-effects from a list of 15 specific health conditions. It is interesting to note that 14% of the total respondents and 21% of the proxies reported that they were currently affected by five or more health conditions. Those who reported no conditions are under-represented at high levels in all categories of utilization. Those with one condition are under-represented at high levels in all categories except ambulatory services in Year 2. Those affected by two through four conditions are over-represented at high levels in all the chronic care categories of utilization and those reporting five or more conditions are over-represented at the high levels of all categories of utilization except those with six conditions relative to ambulatory services in Year 2. Those with three and four conditions are over-represented especially at high levels in average length of acute hospital stay in both years.

As an example of an alternate analytic presentation Table 6 demonstrates that the direction or intensity of utilization generally increases as the level of self-perceived need increases in the non-proxy respondents. However, virtually no proxy respondents were able to be identified as having a medium level of need. Consequently the distribution of need relative to utilization in the proxy sample is very nearly bi-polar, with more high level unmet need than low need in all utilization categories based on ambulatory visits. This was selected as the first choice to consider utilization due to its higher occurance and more normal distribution than other types of utilization. Other types remain to be analyzed, as well as the remaining years of data.

CONCLUSIONS

In summary, the levels of utilization of selected health services when related to several demographic and descriptive characteristics in general, conform, in direction and pattern, to the expectations from previous cross-sectional studies. There are some notable exceptions; e.g., women were not over-represented at high levels as much as expected and in fact were under-represented in utilization of acute hospitalization as measured by average length of stay. Further, the over-representation of the youngest cohort at high levels of ambulatory services though not ambulatory visits was not exactly as expected. While the facility sample and the proxies were over-represented at high levels in average length of acute hospitalization as expected, the facility sample was also over-represented at high levels in utilization of ambulatory visits which was not expected. In the non-proxy group, utilization tended to increase generally as needs increased. In the proxy group selected categories of use showed the opposite pattern; i.e. low need and high utilization. These findings suggest that needs assessment via proxy interviews may not be as valid in predicting utilization over time as is the case of non-proxy interviews. It also suggests the necessity for additional study of this sub-sample.

Each of the expected and unexpected findings will be further tested as the data base is expanded to include the remaining six years of health service utilization records and the remaining respondents. Much is still to be undertaken and much further testing is still required. However, the preliminary findings reported, here, are encouraging both in confirmation of expectations from previous research and in the unexpected variations which, if confirmed in further analyses, will open many new avenues of investigation in the utilization of health services by an aging population. The implications for health services planning and policy making relative to the aging of our societies, given especially the unexpected findings, is substantial.

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TABLE 1 PERCENTAGE OF TOTAL RESPONDENTS BY LEVELS OF SELECTED UTILIZATION IN YEARS ONE AND TWO BY AGE AND BY SEX

Levels of Utilization / Age Cohorts & Sex		AGE							SEX	
		65-69	70-74	75-79	80-84	85-89	90-94	95+	Male	Female
Ambulatory Visits	Year One 33% Low	30.2	24.1	19.8	13.4	9.1	2.3	1.1	51.1	48.9
	Year One 33% Medium	27.2	24.5	19.4	15.3	9.7	3.1	0.8	46.1	53.9
	Year One 33% High	24.9	23.9	21.1	16.9	9.5	3.3	0.5	43.5	56.5
	Year Two 33% Low	29.6	26.0	18.2	12.8	9.4	2.5	1.3	50.9	49.1
	Year Two 33% Medium	27.3	22.9	20.7	16.7	8.9	3.2	0.6	47.6	52.4
	Year Two 33% High	25.5	24.0	21.3	16.1	9.8	3.0	0.5	42.5	57.5
Ambulatory Ser.	Year One 50% Low	25.9	22.6	19.5	15.7	11.5	3.8	1.1	48.9	51.1
	Year One 25% Medium	26.5	26.4	21.8	13.9	7.9	3.0	0.7	45.6	54.4
	Year One 25% High	30.9	25.9	20.4	15.5	6.0	1.2	0.1	43.1	56.9
	Year Two 50% Low	26.0	23.6	18.9	15.4	11.3	3.7	1.1	49.9	50.1
	Year Two 25% Medium	26.1	23.8	20.9	16.2	8.8	3.1	0.8	44.2	55.8
	Year Two 25% High	30.9	25.5	22.1	14.1	6.3	1.1	0.1	42.3	57.7
Av. Length Acute Stay	Year One 80% Low	28.7	24.2	20.1	14.5	9.0	2.9	0.8	46.2	53.8
	Year One 10% Medium	25.0	22.5	20.5	17.9	10.3	2.8	0.9	49.8	50.2
	Year One 10% High	17.0	25.0	20.6	19.5	13.1	4.0	0.8	49.0	51.0
	Year Two 80% Low	29.0	24.6	19.5	14.5	8.7	2.7	0.7	46.2	53.8
	Year Two 10% Medium	25.0	22.3	21.5	17.5	10.5	2.9	0.5	47.7	52.3
	Year Two 10% High	15.9	23.5	23.4	18.2	13.0	4.8	1.3	50.0	50.0
% Visits for Chr. Care	Year One 25% Low	31.1	24.6	19.0	13.8	8.4	2.5	1.4	51.9	48.1
	Year One 35% Medium	25.5	24.7	19.6	16.0	9.9	3.7	0.8	45.0	55.0
	Year One 40% High	26.4	23.6	21.5	15.9	9.7	2.7	0.5	45.1	54.9
	Year Two 25% Low	29.5	24.9	18.9	13.9	9.1	3.0	1.2	51.5	48.5
	Year Two 35% Medium	25.4	24.0	21.4	15.7	9.8	3.1	0.6	43.7	56.3
	Year Two 40% High	27.7	23.9	19.7	16.0	9.1	2.8	0.8	46.8	53.2
% Services for Chronic Care	Year One 60% Low	26.5	23.0	19.5	15.5	10.9	3.6	0.9	48.8	51.2
	Year One 20% Medium	32.0	26.2	21.1	14.7	4.8	1.1	0.0	42.9	57.1
	Year One 20% High	25.8	26.4	21.5	15.4	8.5	2.1	0.3	43.7	56.3
	Year Two 60% Low	26.1	23.6	19.6	15.3	11.0	3.5	0.9	49.1	50.9
	Year Two 20% Medium	31.2	27.7	21.7	13.9	4.8	0.8	0.0	43.7	56.3
	Year Two 20% High	27.4	23.0	20.7	16.7	8.4	2.7	0.8	41.7	58.3
Study Sample (N=4558)		27.2	24.2	20.2	15.3	9.3	3.0	0.8	46.8	53.2

TABLE 2 PERCENTAGE OF PROXY RESPONDENTS BY LEVELS OF SELECTED UTILIZATION IN YEARS ONE AND TWO BY AGE AND BY SEX

Levels of Utilization / Age Cohorts & Sex		AGE							SEX	
		65-69	70-74	75-79	80-84	85-89	90-94	95+	MALE	FEMALE
Ambulatory Visits	Year One 33% Low	19.6	15.8	15.8	22.1	18.8	5.0	2.9	44.6	55.4
	Year One 33% Medium	17.8	11.9	17.0	17.0	23.7	11.1	1.5	40.7	59.3
	Year One 33% High	9.9	15.7	19.8	24.0	19.8	8.3	2.5	40.5	59.5
	Year Two 33% Low	21.4	13.2	18.2	18.6	19.5	6.4	2.7	42.7	57.3
	Year Two 33% Medium	13.4	16.9	12.7	25.4	21.1	8.5	2.1	45.8	54.2
	Year Two 33% High	12.7	14.9	20.1	20.9	20.9	8.2	2.2	38.8	61.2
Ambulatory Ser.	Year One 50% Low	15.4	13.9	17.5	21.5	21.5	7.9	2.4	41.1	58.9
	Year One 25% Medium	22.2	15.3	12.5	19.4	18.1	8.3	4.2	52.8	47.2
	Year One 25% High	19.0	21.4	21.4	21.4	14.3	2.4	0.0	38.1	61.9
	Year Two 50% Low	17.1	12.8	18.4	21.7	19.5	8.4	2.2	42.1	57.9
	Year Two 25% Medium	13.4	15.9	6.1	23.2	30.5	6.1	4.9	34.1	65.9
	Year Two 25% High	20.0	25.5	25.5	14.5	10.9	3.6	0.0	58.2	41.8
Av. Length Acute Stay	Year One 80% Low	19.5	14.5	15.8	20.9	19.0	7.9	2.5	42.9	57.1
	Year One 10% Medium	7.1	9.5	23.8	26.2	23.8	4.8	4.8	42.9	57.1
	Year One 10% High	2.1	20.8	22.9	18.8	29.2	6.3	0.0	39.6	60.4
	Year Two 80% Low	19.3	14.3	17.1	20.4	19.0	7.7	2.2	42.7	57.3
	Year Two 10% Medium	11.8	14.7	16.2	29.4	20.6	4.4	2.9	39.7	60.3
	Year Two 10% High	7.7	16.9	18.5	16.9	27.7	9.2	3.1	44.6	55.4
% Visits for Chronic Care	Year One 25% Low	19.7	16.2	15.2	21.7	17.2	7.1	3.0	44.4	55.6
	Year One 35% Medium	12.1	12.9	16.1	23.4	20.2	12.1	3.2	45.2	54.8
	Year One 40% High	16.7	14.4	20.1	19.0	24.1	4.6	1.1	38.5	61.5
	Year Two 25% Low	18.7	14.1	18.7	20.2	19.7	6.6	2.0	44.4	55.6
	Year Two 35% Medium	16.2	14.8	17.6	21.1	20.4	7.7	2.1	45.8	54.2
	Year Two 40% High	14.7	15.4	14.7	22.4	21.2	8.3	3.2	37.2	62.8
% Services for Chronic Care	Year One 60% Low	15.8	13.9	16.8	21.4	21.7	7.5	2.9	42.8	57.2
	Year One 20% Medium	25.9	18.5	18.5	18.5	14.8	3.7	0.0	37.0	63.0
	Year One 20% High	19.0	19.0	19.0	20.7	31.8	8.6	0.0	43.1	56.9
	Year Two 60% Low	17.3	12.7	17.3	21.9	20.4	8.4	2.0	40.7	59.3
	Year Two 20% Medium	17.9	25.6	23.1	17.9	12.8	2.6	0.0	56.4	43.6
	Year Two 20% High	12.5	20.3	12.5	18.8	25.0	4.7	6.3	45.3	54.7
Study Sample (N=496)		15.6	15.5	17.0	22.6	18.9	8.5	2.0	45.6	54.5

TABLE 3 PERCENTAGE OF TOTAL AND PROXY RESPONDENTS BY LEVELS OF SELECTED UTILIZATION IN YEARS ONE AND TWO BY SAMPLES

Mental Status & Sample Status / Levels of Utilization			TOTAL SAMPLE		PROXY SAMPLE	
			Community	Facility	Community	Facility
Ambulatory Visits	Year One	33% Low	77.3	22.7	31.3	68.8
		33% Medium	76.8	23.2	50.4	49.6
		33% High	71.0	29.0	38.0	62.0
	Year Two	33% Low	77.3	22.7	32.7	67.3
		33% Medium	78.1	21.9	44.4	55.6
		33% High	69.9	30.1	40.3	59.7
Ambulatory Serv.	Year One	50% Low	71.4	28.6	31.9	68.1
		25% Medium	75.7	24.3	54.2	45.8
		25% High	82.0	18.0	66.7	33.3
	Year Two	50% Low	71.7	28.3	32.9	67.1
		25% Medium	75.8	24.2	45.1	54.9
		25% High	80.8	19.2	61.8	38.2
Average Length Acute Stay	Year One	80% Low	75.8	24.2	34.5	65.5
		10% Medium	72.6	27.4	50.0	50.0
		10% High	69.2	30.8	58.3	41.7
	Year Two	80% Low	75.3	24.7	31.1	68.9
		10% Medium	75.2	24.8	55.9	44.1
		10% High	71.4	28.6	58.5	41.5
% Visits for Chronic Care	Year One	25% Low	77.6	22.4	31.3	68.7
		35% Medium	72.4	27.6	46.0	54.0
		40% High	75.4	24.6	40.2	59.8
	Year Two	25% Low	76.6	23.4	30.3	69.7
		35% Medium	71.8	28.2	42.3	57.7
		40% High	77.1	22.9	44.2	55.8
% Services for Chronic Care	Year One	60% Low	72.2	27.8	32.1	67.9
		20% Medium	82.0	18.0	66.7	33.3
		20% High	77.5	22.5	67.2	32.8
	Year Two	60% Low	72.2	27.8	33.3	66.7
		20% Medium	82.8	17.2	61.5	38.5
		20% High	76.4	23.6	53.1	46.9
Total			74.9 (N=4558)	25.1	39.6 (N=496)	60.4

TABLE 4 PERCENTAGE OF TOTAL RESPONDENTS BY LEVELS OF SELECTED UTILIZATION IN YEARS ONE AND TWO BY TOTAL CONDITIONS LISTED

Utilization Level \ Total Conditions		None	One	Two	Three	Four	Five	Six	Seven Or More
Ambulatory Visits Year One	33% Low	21.1	24.8	22.1	13.5	8.3	4.8	3.0	2.4
	33% Medium	12.8	25.6	21.9	17.5	11.2	5.7	3.0	2.3
	33% High	8.8	17.5	22.7	17.3	13.7	8.6	5.1	6.3
Ambulatory Visits Year Two	33% Low	20.9	25.6	22.0	13.6	8.4	4.7	3.0	1.9
	33% Medium	13.9	23.7	23.0	16.6	11.2	5.6	2.7	2.8
	33% High	8.5	18.7	21.8	17.8	13.3	8.7	5.3	5.5
Ambulatory Ser. Year One	50% Low	15.8	22.5	23.1	14.8	10.7	6.0	3.8	3.3
	25% Medium	11.3	22.6	23.0	17.5	11.7	6.7	3.3	3.8
	25% High	12.4	22.3	19.8	17.9	11.7	7.2	4.0	4.8
Ambulatory Ser. Year Two	50% Low	15.9	22.7	22.2	16.0	10.4	5.7	3.6	3.5
	25% Medium	11.2	20.4	25.6	16.0	11.8	6.6	4.6	3.7
	25% High	12.2	23.6	19.8	16.6	12.1	7.7	3.5	4.4
Av. Length Acute Stay Year One	80% Low	15.7	23.6	22.9	15.2	10.0	6.0	3.4	3.1
	10% Medium	9.0	17.1	18.8	21.4	14.8	7.1	4.8	6.8
	10% High	4.2	17.5	20.3	18.9	17.2	9.6	6.1	6.3
Av. Length Acute Stay Year Two	80% Low	15.8	24.0	22.4	15.7	10.2	5.7	3.2	3.0
	10% Medium	7.0	17.0	22.6	18.0	13.4	9.5	5.9	6.4
	10% High	9.3	17.7	20.7	17.2	15.6	8.4	5.3	5.8
% Visits for Chr. Care Year One	25% Low	21.4	25.6	22.0	12.8	8.0	5.2	2.9	2.0
	35% Medium	11.1	20.5	21.6	16.3	12.2	8.3	4.5	5.6
	40% High	12.0	22.3	23.0	18.2	12.2	5.5	3.6	3.5
% Visits for Chr. Care Year Two	25% Low	21.6	25.5	22.4	13.3	7.9	4.2	2.8	2.3
	35% Medium	11.2	20.6	21.1	17.9	12.4	7.1	4.4	5.3
	40% High	11.7	22.3	23.4	16.3	12.0	7.2	3.8	3.2
% Services for Chronic Care Year One	60% Low	15.8	22.7	22.9	14.7	10.6	6.1	3.7	3.5
	20% Medium	12.3	23.3	19.0	18.0	11.8	7.5	3.5	4.6
	20% High	9.8	21.0	23.0	19.1	12.5	6.5	4.0	4.0
% Services for Chronic Care Year Two	60% Low	15.9	22.6	22.8	15.7	10.5	5.6	3.4	3.4
	20% Medium	11.2	22.9	19.8	16.5	12.0	8.3	4.2	5.1
	20% High	10.7	21.4	22.6	17.4	12.4	7.3	4.5	3.7
Study Sample (N=4558)		14.0	22.5	22.2	16.1	11.1	6.4	3.8	3.8

TABLE 5 PERCENTAGE OF PROXY RESPONDENTS BY LEVELS OF SELECTED UTILIZATION IN YEARS ONE AND TWO BY TOTAL CONDITIONS LISTED

Utilization Level / Total Conditions		None	One	Two	Three	Four	Five	Six	Seven or More
Ambulatory Visits	Year One 33% Low	6.7	21.3	21.3	20.8	14.6	7.5	6.3	1.6
	Year One 33% Medium	6.7	11.3	23.0	24.4	12.6	11.9	5.9	4.4
	Year One 33% High	0.8	9.1	19.0	24.8	17.4	14.9	8.3	5.8
	Year Two 33% Low	5.0	16.8	22.7	22.7	12.3	9.1	8.6	2.9
	Year Two 33% Medium	8.5	17.6	19.0	23.9	19.0	7.0	3.5	1.4
	Year Two 33% High	2.2	11.2	20.9	21.6	14.2	16.4	6.7	6.6
Ambulatory Serv.	Year One 50% Low	5.5	16.2	20.9	23.8	14.1	9.7	7.6	2.2
	Year One 25% Medium	5.6	12.5	30.6	18.1	12.5	9.7	2.8	8.4
	Year One 25% High	2.4	14.3	7.1	21.4	23.8	19.0	4.8	4.8
	Year Two 50% Low	5.3	15.9	20.9	22.6	14.8	9.7	7.5	3.4
	Year Two 25% Medium	6.1	14.6	23.2	23.2	15.9	9.8	4.9	2.4
	Year Two 25% High	3.6	14.5	20.0	23.6	12.7	16.4	3.6	5.4
Average Length Acute Stay	Year One 80% Low	5.7	17.2	23.6	21.4	13.3	10.3	6.2	2.1
	Year One 10% Medium	4.8	7.1	4.8	38.1	21.4	7.1	7.1	9.6
	Year One 10% High	2.1	8.3	14.6	20.8	20.8	14.6	10.4	8.4
	Year Two 80% Low	5.5	17.1	22.0	22.0	12.9	9.6	6.9	4.0
	Year Two 10% Medium	2.9	10.3	20.6	23.5	23.5	10.3	5.9	3.0
	Year Two 10% High	6.2	12.3	16.9	26.2	15.4	15.4	6.2	1.5
% Visits for Chronic Care	Year One 25% Low	6.1	20.7	22.2	21.2	12.6	8.1	6.6	2.5
	Year One 35% Medium	4.0	10.5	16.1	23.4	14.5	16.9	10.5	4.0
	Year One 40% High	5.2	13.2	23.6	24.1	17.2	8.6	4.0	4.0
	Year Two 25% Low	5.6	20.7	23.7	21.2	10.1	8.6	7.6	2.5
	Year Two 35% Medium	5.6	12.7	19.0	24.6	16.9	9.2	6.3	5.6
	Year Two 40% High	4.5	11.5	19.9	23.1	18.6	14.1	5.8	2.5
% Services for Chronic Care	Year One 60% Low	5.4	15.8	21.7	23.4	13.9	10.0	7.3	2.6
	Year One 20% Medium	3.7	7.4	14.8	22.2	22.2	14.8	7.4	7.4
	Year One 20% High	5.2	17.2	20.7	19.0	17.2	12.1	1.7	6.8
	Year Two 60% Low	5.1	16.3	21.9	23.2	14.2	9.2	6.9	3.4
	Year Two 20% Medium	2.6	10.3	30.8	17.9	15.4	15.4	2.6	5.2
	Year Two 20% High	7.8	14.1	10.9	23.4	17.2	15.6	7.8	3.2
Proxy Sample N=496		4.9	14.5	21.0	23.0	15.1	10.9	6.5	3.7

TABLE 6 PERCENT OF NON-PROXY AND PROXY RESPONDENTS BY LEVEL OF NEEDS SCORES BY LEVEL OF UTILIZATION OF AMBULATORY VISITS IN YEAR ONE

Utilization Levels / Need Levels		Ambulatory Visits					
		Non-Proxy (N=4062)			Proxy (N=496)		
		Low 33%	Medium 33%	High 33%	Low 33%	Medium 33%	High 33%
Scale 1	Low	40.8	43.5	40.2	17.9	25.5	28.6
	Medium	33.4	36.6	34.5	10.4	27.3	20.4
	High	25.9	20.9	25.3	71.7	47.3	51.0
Scale 2	Low	24.6	29.7	30.7	10.4	10.9	10.2
	Medium	34.2	33.3	34.8	17.9	29.1	34.7
	High	41.2	37.0	34.5	71.7	60.0	55.1
Scale 3	Low	40.3	43.4	39.6	24.5	36.4	30.6
	Medium	29.2	26.9	27.5	3.8	9.1	4.1
	High	30.6	29.7	33.0	71.7	54.6	65.3
Scale 4	Low	20.2	27.4	24.7	35.9	38.2	34.7
	Medium	45.9	45.3	44.2	12.3	10.9	14.3
	High	33.9	27.3	31.1	51.9	50.9	51.0
Scale 5	Low	49.2	41.6	30.1	37.7	29.1	14.3
	Medium	31.2	36.0	35.6	6.6	3.6	2.0
	High	19.6	22.3	34.4	55.7	67.3	83.7
Scale 6	Low	43.7	41.2	34.2	4.7	7.3	4.1
	Medium	34.9	36.7	39.7	3.8	1.8	2.0
	High	21.3	22.2	26.1	91.5	90.9	93.9
Scale 7	Low	35.7	33.8	32.2	18.9	9.1	8.2
	Medium	33.1	33.8	32.5	8.5	10.9	4.1
	High	31.2	32.4	35.3	72.6	80.0	87.8
Scale 8	Low	43.1	42.9	39.1	20.8	25.5	12.2
	Medium	32.6	33.5	34.7	36.8	36.4	38.8
	High	24.3	23.6	26.2	42.5	38.2	49.0
Scale 9	Low	38.2	34.3	30.9	7.5	5.5	6.1
	Medium	37.9	39.5	38.5	8.5	5.5	2.0
	High	23.8	26.2	30.5	83.9	89.1	91.84